National Aeronautics and Space Administration

NASAfacts

Sustainability Base

A Living Testbed for NASA Technologies

Sustainability Base is simultaneously a workplace, a showcase for NASA technology and a living prototype for future buildings.
Image credit: NASA/Ames Eric James

The Facility

Sustainability Base at NASA Ames Research Center, Moffett Field, Calif., is one of the greenest buildings in the federal government.

Sustainability Base is designed to be "native to place," which means it incorporates design elements of its surroundings into the new design. This 50,000 square-foot, lunar-shaped building is oriented to take advantage of the sun's arc and the prevailing winds from San Francisco Bay. It is capable of anticipating and reacting to changes in sunlight, temperature, wind, and occupancy and will be able to optimize its performance automatically, in real time, in response to internal and external changes. It is simultaneously a workplace, a showcase for NASA technology and a living prototype for future buildings. It is NASA's latest mission on Earth.

LEED Platinum Certified

The building is Leadership in Energy and Environmental Design (LEED) platinum certified, signifying the U.S. Green Building Council's highest level of achievement in design and construction for sustainability.

Architecture

Sustainability Base is supported by an "exoskeleton" --- structural supports on the outside of the building that allow an unobstructed flow of air and daylight.

The building's narrow width (54-feet) allows daylight to reach desks in the middle of each floor, and operable windows can be opened for natural ventilation. The windows also are automated to flush the building with cool air at night.

Electrical power required for the building is more than offset by on-site photovoltaic solar panels and solid oxide fuel cell technology from a Bloom Energy Box, an example of repurposed NASA space technology. The site also features 106 geothermal wells supporting a ground-source heat pump system.

Part of the goal of Sustainability Base is to reduce potable (drinkable) water consumption by 90 percent, compared to conventionally constructed buildings of equivalent size. A water recovery system, derived from one that was originally designed for the International Space Station, filters water used to flush toilets and urinals. All irrigation water is reclaimed water.